

WHAT IS CLAIMED IS:

1. A multibeam scanning optical device comprising:

a first optical system which transforms a  
5 plurality of light beams emitted from a plurality of  
light source means into divergent light beams or  
convergent light beams;

a second optical system which focuses a  
plurality of light beams emitted from the first  
10 optical system as a linear image in a main scanning  
direction in the vicinity of a deflection plane of  
deflecting means;

the deflecting means which deflects a plurality  
of light beams emitted from the second optical system  
15 in the main scanning direction; and

a third optical system which focuses the  
plurality of light beams deflected by the deflecting  
means on a surface to be scanned,

wherein the multibeam scanning optical device  
20 further comprises a plurality of adjusting means  
having sensitivities different from each other which  
change a relative gap in a sub-scanning direction of  
principal ray of a plurality of light beams incident  
in the second optical system.

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2. A multibeam scanning optical device  
according to claim 1, wherein one of the plurality of

adjusting means is automatically controlled by a drive mechanism according to a signal from scanning lines gap detecting means and maintains the predetermined scanning lines gap.

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3. A multibeam scanning optical device according to claim 2, wherein the drive mechanism is fixed during image formation on a page basis.

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4. A multibeam scanning optical device according to claim 1, wherein the first optical system has a plurality of focusing optical elements and has beam synthesizing means which synthesizes a plurality of light beams emitted from the plurality of focusing optical elements into a plurality of light beams proximate to each other.

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5. A multibeam scanning optical device according to claim 4, wherein optical axes of the plurality of focusing optical elements are arranged so as to be parallel or substantially parallel with each other.

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6. A multibeam scanning optical device according to claim 1, wherein the plurality of adjusting means include two adjusting means of a first adjusting means and a second adjusting means.

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7. A multibeam scanning optical device according to claim 6, wherein the plurality of light source means and the first optical system are  
5 integrally formed as a unit, and the first adjusting means includes a mechanism for rotating and adjusting the integrated unit with an axis parallel with the optical axes of the plurality of focusing optical elements as a rotation axis.

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8. A multibeam scanning optical device according to claim 6, wherein the plurality of focusing optical elements and the plurality of light source means corresponding thereto are integrated as  
15 a unit, respectively, and the first adjusting means includes a mechanism for changing a relative gap among the integrated respective units in the sub-scanning direction.

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9. A multibeam scanning optical device according to claim 6, wherein the second adjusting means is automatically controlled.

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10. A multibeam scanning optical device according to claim 9, wherein the second adjusting means includes a mechanism for rotating and adjusting the beam synthesizing means with an axis parallel

with the main scanning direction as a rotation axis.

11. A multibeam scanning optical device  
according to claim 9, wherein the second adjusting  
5 means includes a mechanism for rotating and adjusting  
the beam synthesizing means with an axis parallel  
with the optical axes of the focusing optical  
elements as a rotation axis.

10 12. A multibeam scanning optical device  
according to claim 1, wherein the light source means  
comprise multibeam laser light sources having a  
plurality of light emission points.

15 13. A multibeam scanning optical device  
according to claim 12, wherein the first optical  
system includes a plurality of focusing optical  
elements, and the plurality of adjusting means  
includes a first adjusting means which rotates and  
20 adjusts the multibeam laser light sources  
corresponding to the focusing optical elements with  
optical axes of the focusing optical elements as  
rotation axes.

25 14. A multibeam scanning optical device  
according to any one of claims 1 to 13, wherein the  
deflecting means is constituted by a polygon mirror,

and a width in the main scanning direction of a light beam incident in the polygon mirror is larger than a width of a deflection plane of the polygon mirror.

5           15. An image forming apparatus comprising:  
            a multibeam scanning optical device according  
to any one of claims 1 to 13;

            a photosensitive member arranged on a surface  
to be scanned;

10           a developing device which develops an  
electrostatic latent image, which is formed on the  
photosensitive member by a light beam used for  
scanning by the multibeam scanning optical device, as  
a toner image;

15           a transfer device which transfers the developed  
toner image onto a material to be transferred; and

            a fixing device which fixes the transferred  
toner image on the material to be transferred.

20           16. An image forming apparatus comprising:  
            a multibeam scanning optical device according  
to any one of claims 1 to 13; and

            a printer controller which converts code data  
inputted from an external device into an image signal  
25 and inputs the image signal to the scanning optical  
system.

            17. A color image forming apparatus comprising

a plurality of image bearing members which are arranged on a surface to be scanned of a multibeam scanning optical device according to any one of claims 1 to 13, respectively, and form images of  
5 colors different from each other.

18. A color image forming apparatus according to claim 17, further comprising a printer controller which converts color signals inputted from an  
10 external device into image data of different colors and inputs the image data to the respective scanning optical systems.